

**METHOD AND APPARATUS PROVIDING AUTONOMOUS DISCOVERY  
OF POTENTIAL TRADING PARTNERS IN A DYNAMIC,  
DECENTRALIZED INFORMATION ECONOMY**

**ABSTRACT OF THE DISCLOSURE**

A data communications system includes a communications network that couples together processor nodes. Certain ones of the processor nodes execute a program for implementing the functionality of at least one of a software agent or a directory service agent. The program operates so as to initiate a search procedure for at least one of other software agents or directory service agents, to determine whether to query a current directory service agent for a list of other software agents that match at least one search criterion and, responsive to determining to query the current directory service agent, to query the current directory service agent for the list of other software agents that match at least one search criterion. The program adds any new matching software agents to a list of matching software agents, determines whether to query a current directory service agent for a list of other directory service agents and, responsive to determining to query the current directory service agent for a list of other directory service agents, queries the current directory service agent for the list of other directory service agents. The program then adds any new directory service agents to a list of directory service agents and selectively one of terminates the search procedure or selects from the list of directory service agents another directory service agent as the current directory service agent, and recursively continues the process until the search procedure is terminated. A cross-listing mechanism is also provided for the case where there are a plurality of directory service agents. In one case a first directory service agent contacts, through the communications network, a second directory service agent with a solicitation to list the second directory service agent and the second directory service agent accepts or refuses the solicitation, where an acceptance includes sending listing information. In another case the first directory service agent contacts the second directory service agent with a request to be listed by the second directory service agent, and the second directory service agent accepts or refuses to list the first directory service agent. An indirect case is also presented, where initial contact is made through a third directory service agent.

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